

## Orientation Center celebrates 10th year

*by Ranney Adams, Propulsion Directorate*

EDWARDS AFB, CALIF. — It was just 10 years ago that the Air Force Research Laboratory's Propulsion Directorate acquired a building that would become its Orientation Center.

Over the last 10 years the center has served several functions. It became a visitor center for this secure site: a place where presentations of past, present and future efforts of the lab are made to visitors. It is a living and changing place that formed the basis for the site's external "road" presentations, with each event evolving and improving the content. It became the repository for images and recollections that depict more than 50 years of rocket propulsion history. It became the basis for the lab's Rocketry 101 course that was sought out by educators and program leaders for assisting students of all ages.

It also provides a one-stop synopsis of where the lab and the art of propulsion have been, and where it is going. It is invaluable to the national decision maker and local leadership. The center provides a look at hardware systems that are unavailable today because they no longer exist or are at the bottom of the ocean. It reflects the family of researchers, engineers and support staff who make the systems and concepts possible.

Today the hardware collection is large enough to share, leaving a trail back to the source of the technologies. It reflects the major steps in rocket propulsion evolution and the national needs that drove their development. It is hard to envision our current state-of-the-art and future propulsion efforts without the technologies and concepts developed here at the lab.

The center describes 65 square miles of the base, highlighting such systems as: Thor IRBM, the great-grandfather of today's Delta rocket; Titan launch vehicles and their propulsion, along with MX or Peacekeeper and its earliest predecessor, the Minuteman; the rare Agena rocket engine that was the first re-startable liquid rocket in space, providing the means for the Gemini crews to practice space maneuvers and its current equivalent.

The center has photos and memories of the exploits of the North American and consolidated crews who worked during the early days of Thor, Atlas and the Saturn F-1 propulsion, which provided the basis for America's rocket propulsion capability. Likewise, the exploits of personnel testing Titan solid rocket motors and the powerful photos of these 11-story high rockets held solidly in their test stand give a glimpse of their ability to lift the nation's heaviest payloads into space.

Soon, Boeing-Rocketdyne's RS-68 liquid rocket will power the new Delta IV and Lockheed Martin Skunk Works personnel will watch a 35-year-old lab concept, the aerospike rocket engine, power the X-33 into near-space during technology demonstration flights. At the same time, the lab's unique facilities and personnel are generating tomorrow's propulsion: electric- and solar-powered satellite propulsion for maneuvering and exploiting space; laser-powered vehicles; and "super rockets," using high-energy density matter or super-propellants that perform beyond anything possible today. All these efforts are guided by a master program called integrated high payoff rocket propulsion technology that proposes and demonstrates doubling the nation's rocket propulsion capabilities by 2010. @